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5           Figures 2a, 2b and 2c show probe tips 20, 40 and 30, respectively, designed for measurements in narrow canals. The tips 20, 40 and 30 attach to a probe shaft similar to the shaft 18 of Fig. 1a and in the same manner as tip 12 in figure 1b. Referring back to 2a, the electrodes 24 on the tip 22 of the probe 20 are connected by wires 28 to tissue recognizing circuitry.

10           Figure 2b shows a probe tip 40 with a different electrode configuration where two of the electrodes 24 of Fig. 2a are combined into a common large electrode 45 at the front of the probe tip 40. Two other electrodes 43 and 49 make up the complete system. When the probe is being used to measure tissue conductivity, current is fed between electrodes 49 and 45 and the voltage drop is measured between 43 and 45. When making pulse and decay determinations, (method 1) electrodes 43 and 49 or 43 and 45 are employed. This configuration has the advantage of needing fewer electrodes and the measuring zone is closer to the tip of the probe.

15           Fig. 2c illustrates a probe tip 30 into which are fitted rows of electrodes 34 and 35, typically eight in each row. In operation the electrodes are used in the same manner described above with respect to the probe 40 in figure 2b with electrode 31 as the common electrode and each column of other electrodes being employed in turn. This configuration enables the inside of the canal to be scanned circumferentially without moving the probe. The electrodes 34 and 35 are employed in turn by the electronic circuits so that they select appropriate pairs of electrodes to be energized. This provides a means for scanning electronically rather than mechanically.

20           This instrument can be applied to the diagnosis and detection of abnormal tissue types in many, otherwise intractable situations such as in the digestive tract where the presence of food undergoing processing would render optical measurements unreliable.

25           Now referring to Fig. 3, there is shown a "wood drill" probe tip 50 for scanning a cervix as described in our US Patent No. 5,880,350. The curved inner surface 42 of the probe tip 50 is fitted with a number of electrodes 44 which are employed in pairs or in groups to perform the needed electrical property determinations. This configuration allows the scanning of the cervix to be

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